

or alternatively, suitable shields are to be fitted in the way of flanged or mechanical pipe joints when welded joints are not practicable. Piping that conveys fuel oil or lubricating oil to equipment and is in the proximity of equipment or lines having an open flame or having parts operating above 500 °F must be of seamless steel. (See § 56.50–65 of this part.)

(k) Oil piping drains, strainers and other equipment subject to normal oil leakage must be fitted with drip pans or other means to prevent oil draining into the bilge.

(l) Where oil piping passes through a non-oil tank without stop valves complying with paragraph (d) of this section installed at all tank penetrations, the piping must comply with § 56.50–50(k).

(m) Each arrangement for the storage, distribution, and use of oil in a pressure-lubrication system must—

(1) As well as comply with § 56.50–80, be such as to ensure the safety of the vessel and all persons aboard; and

(2) In a machinery space, meet the applicable requirements of §§ 56.50–60 (b)(2) and (d), 56.50–85(a)(11), 56.50–90 (c) and (d), and 58.01–55(f) of this subchapter. No arrangement need comply with § 56.50–90 (c)(1) and (c)(3) of this subchapter if the sounding pipe is fitted with an effective means of closure, such as a threaded cap or plug or other means acceptable to the Officer in Charge, Marine Inspection. The use of flexible piping or hose is permitted in accordance with the applicable requirements of §§ 56.35–10, 56.35–15, and 56.60–25(c).

(n) Each arrangement for the storage, distribution, and use of any other flammable oil employed under pressure in a power transmission-system, control and activating system, or heating system must be such as to ensure the safety of the vessel and all persons aboard by—

(1) Complying with Subpart 58.30 of this subchapter; and,

(2) Where means of ignition are present, meeting the applicable requirements of §§ 56.50–85(a)(11), 56.50–90 (c) and (d), and 58.01–55(f) of this subchapter. Each pipe and its valves and fittings must be of steel or other approved material, except that the use of

flexible piping or hose is permitted in accordance with the applicable requirements of §§ 56.35–10, 56.35–15, and 56.60–25(c).

[CGFR 68–82, 33 FR 18843, Dec. 18, 1968, as amended by CGFR 69–127, 35 FR 9979, June 17, 1970; CGD 73–254, 40 FR 40165, Sept. 2, 1975; CGD 77–140, 54 FR 40609, Oct. 2, 1989; 55 FR 39968, Oct. 1, 1990; CGD 83–043, 60 FR 24774, May 10, 1995; USCG–2000–7790, 65 FR 58460, Sept. 29, 2000; USCG–2004–18884, 69 FR 58346, Sept. 30, 2004; USCG–2003–16630, 73 FR 65178, Oct. 31, 2008]

#### § 56.50–65 Burner fuel-oil service systems.

(a) All discharge piping from the fuel oil service pumps to burners must be seamless steel with a thickness of at least Schedule 80. If required by § 56.07–10(e) of this part or paragraph 104.1.2 of ASME B31.1 (incorporated by reference; see 46 CFR 56.01–2), the thickness must be greater than Schedule 80. Short lengths of steel, or annealed copper nickel, nickel copper, or copper pipe and tubing may be used between the fuel oil burner front header manifold and the atomizer head to provide flexibility. All material used must meet the requirements of subpart 56.60 of this part. The use of non-metallic materials is prohibited. The thickness of the short lengths must not be less than the larger of 0.9 mm (0.35 inch) or that required by § 56.07–10(e) of this part. Flexible metallic tubing for this application may be used when approved by the Marine Safety Center. Tubing fittings must be of the flared type except that flareless fittings of the nonbite type may be used when the tubing is steel, nickel copper or copper nickel.

(b)(1) All vessels having oil fired boilers must have at least two fuel service pumps, each of sufficient capacity to supply all the boilers at full power, and arranged so that one may be overhauled while the other is in service. At least two fuel oil heaters of approximately equal capacity must be installed and so arranged that any heater may be overhauled while the other(s) is (are) in service. Suction and discharge strainers must be of the duplex or other type capable of being cleaned without interrupting the oil supply.

(2) All auxiliary boilers, except those furnishing steam for vital equipment and fire extinguishing purposes other

## § 56.50-70

than duplicate installations, may be equipped with a single fuel oil service pump and a single fuel oil heater. Such pumps need not be fitted with discharge strainers.

(3) Strainers must be located so as to preclude the possibility of spraying oil on the burner or boiler casing, or be provided with spray shields. Coamings, drip pans, etc., must be fitted under fuel oil service pumps, heaters, etc., where necessary to prevent oil drainage to the bilge.

(4) Boilers burning fuel oils of low viscosity need not be equipped with fuel oil heaters, provided acceptable evidence is furnished to indicate that satisfactory combustion will be obtained without the use of heaters.

(c) Piping between service pumps and burners shall be located so as to be readily observable, and all bolted flange joints shall be provided with a wrap around deflector to deflect spray in case of a leak. The relief valve located at the pump and the relief valves fitted to the fuel oil heaters shall discharge back into the settling tank or the suction side of the pump. The return line from the burners shall be so arranged that the suction piping cannot be subjected to discharge pressure.

(d) If threaded-bonnet valves are employed, they shall be of the union-bonnet type capable of being packed under pressure.

(e) Unions shall not be used for pipe diameters of 1 inch and above.

(f) Boiler header valves of the quick closing type shall be installed in the fuel supply lines as close to the boiler front header as practicable. The location is to be accessible to the operator or remotely controlled.

(g) Bushings and street ells are not permitted in fuel oil discharge piping.

(h) Each fuel-oil service pump must be equipped with controls as required by § 58.01-25 of this subchapter.

[CGFR 68-82, 33 FR 18843, Dec. 18, 1968, as amended by CGFR 69-127, 35 FR 9978, June 17, 1970; CGD 77-140, 54 FR 40609, Oct. 2, 1989; CGD 83-043, 60 FR 24774, May 10, 1995; USCG-2003-16630, 73 FR 65178, Oct. 31, 2008]

## § 56.50-70 Gasoline fuel systems.

(a) *Material.* (1) Fuel supply piping to the engines shall be of seamless drawn annealed copper pipe or tubing, nickel

## 46 CFR Ch. I (10-1-10 Edition)

copper, or copper nickel pipe or tubing meeting the requirements of subpart 56.60.

(2) Thicknesses of tubing walls must not be less than the larger of that shown in Table 56.50-70(a) of this section or that required by 46 CFR 56.07-10(e) and 104.1.2 of ASME B31.1 (incorporated by reference; see 46 CFR 56.01-2).

(3) Tubing fittings shall be of nonferrous drawn or forged metal and of the flared type except that the flareless fittings of the nonbite type may be used when the tubing system is of nickel copper or copper nickel. Tubing shall be cut square and flared by suitable tools. Tube ends shall be annealed before flaring. Pipe fittings shall be of nonferrous material. Pipe thread joints shall be made tight with a suitable compound.

(4) Valves for fuel lines shall be of nonferrous material of the union bonnet type with ground seats except that cocks may be used if they are the solid bottom type with tapered plugs and union bonnets.

TABLE 56.50-70(a)—TUBING WALL THICKNESS

Outside diameter of tubing in inches	Thickness	
	B.W.G.	Inch
1/8, 3/16, 1/4 .....	#21	0.032
5/16, 3/8 .....	#20	.035
7/16, 1/2 .....	#19	.042

(b) *Installation.* (1) All fuel pipes, pipe connections, and accessories shall be readily accessible. The piping shall run in sight wherever practicable, protected against mechanical injury, and effectively secured against excessive movement and vibration by the use of soft nonferrous metal liners or straps without sharp edges. Where passing through steel decks or bulkheads, fuel lines shall be protected by close fitting ferrules or stuffing boxes. Refer to § 56.30-25 for tubing joint installations.

(2) Either a short length of suitable metallic or nonmetallic flexible tubing or hose or a loop of annealed copper tubing must be installed in the fuel-supply line at or near the engine to prevent damage by vibration.

(i) If nonmetallic flexible hose is used, it must meet the requirements of 46 CFR 56.60-25(b) for fuel service.